

## THE MOTHS OF INDIA.

SUPPLEMENTARY PAPER TO THE VOLUMES IN  
"THE FAUNA OF BRITISH INDIA."

## PART I.

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(With Plate A.)

(Read before the Bombay Natural History Society on  
30th September, 1897.)

The following paper is the first of what I hope may be a series of annual papers aiming at keeping pace with the growth of the subject with which I have attempted to deal in my volumes in the "Fauna of India" series. These volumes can hardly be considered more than the necessary preliminary setting in order of a vast subject so as to reduce it to a workable state. Of how much still remains to be done, not only in collecting and classifying new species, but also in getting together sufficient material to settle disputed points with regard to those already described, no one can be conscious till he has worked at the subject, not to mention the immensely interesting field of the life-history of nearly all the species. Without referring to the smaller collections or the collections gradually acquired by the East India Company's Museum and the British Museum, the material for the subject-matter of the "Moths of India" almost entirely rests on the following collections :—

*North-West Himalayas.*—The large collections made in the outer ranges by the Rev. J. Hocking and Major Harford, whilst the moths of Kashmir are only known from one season's collecting by Mr. J. H. Leech and his assistants, who brought home a number of forms, including several *Sphingidæ*, which have never been taken since, although the valley is yearly frequented by such a large number of Europeans who are interested in sport and natural history, who have however let the moths severely alone; the fauna is especially interesting from the large number of Palæarctic and Central Asian species represented. The Sikhim fauna is comparatively well known from the numerous collections made by W. Atkinson, Otto Möller, Elwes, and more recently by Dr. Pilcher, and the steady working at the subject by Mr. G. C. Dudgeon.

The Bombay Presidency was well worked for a number of years by Colonel Swinhoe, but a great deal still remains to be done, especially amongst the smaller species, whilst Central India has hardly been touched, though it cannot be expected to be very rich.

Mysore and Madras have had collections made in them by Captain Watson, and exhibit the typical widespread fauna of the plains of India, leaving, however, plenty of work to be done amongst the smaller species.

The hill ranges of Southern India and the Western Ghâts are by far the richest collecting ground in peninsular India, and may be said to be practically untouched, as far as systematic collecting is concerned, except for the collections made on the Nilgiris by Mr. Alfred Lindsay and myself, and it will be realized how much still remains to be done by any collector who will really work at the subject when it is said that I only collected moths there for a year and-a-half, and during that time I took over a thousand species, of which some three hundred proved to be undescribed.

Ceylon is the district in which more has been done in the way of steady collecting—spread over a large number of years—and in breeding than in any other; the collections made by Thwaites, Mackwood, Green, Butt, Pole, and others have given us considerable knowledge of its moth fauna, yet a constant stream of new species shews there is still much to be done, even though decrease is beginning to be shown both in numbers and size.

In Upper Assam valuable collections were made at Margharita and in the Nāga Hills by W. Doherty during one of his rapid and brilliant expeditions; but it is to the Khâsis we must turn if we wish to see what can really be done by systematic collecting in a wonderfully rich district, as will be observed by any one noting the overpowering proportion of new species from that locality in the following pages. This result is due to the immense collections made by the trained body of native collectors acting for Mr. A. Doncaster, and his immense series of specimens of innumerable species, all in most perfect condition, and linking the Indian fauna with that of China and Japan on the one hand, and the Malayan sub-region on the other, must be seen to be fully appreciated. I am much indebted to him for supplying me with specimens for description, and to the Hon'ble W. Rothschild for the

loan of the species described in his collection from the same source. Lastly, we must touch on the subject of Burma, lightly however, because of the small amount of work at the moths that has been done there compared to what remains to be done. The only collections of any size were made at Moulmein by Archdeacon Clerk, at Rangoon by Noble and by Doherty in Eastern Pegu and Tenasserim, though smaller collections were made by Fea, Colonel Bingham, and Captain Watson. These are sufficient to show how immensely rich the country is, a marked feature in the fauna being the numbers of brilliant *Sesiidæ*, *Syntomidæ* and *Zygænidæ*. It is to the hill ranges of Burma that we must look for a large proportion of the additions to the Indian fauna in the future, many of its species being also found in Borneo and Sumatra.

I have written the above sketch of the material of our present knowledge in the hopes of interesting more naturalists in India in the subject of its moths. It is probable that hitherto people who would otherwise have taken up the subject have been frightened by the vast numbers of species and the impossibility of acquiring any knowledge of their names and classification; but I hope that the volumes on the "Moths of India" may now have cleared the groundwork of the subject, and I shall be happy to send any one lists of the names of any species of which numbered specimens are sent to me at the British Museum.

#### EUPTEROTIDÆ.

54. TAGORA PATULA del. *Sphingognatha khasiana*.

54a. TAGORA KHASIANA. Moore. Lep. Atk., p. 77.

♂. Ochreous-brown; palpi black fringed with brown hair; wings with very numerous waved fuscous lines. Forewing with small hyaline discoidal spot; a double oblique line from apex to outer margin beyond middle; a waved submarginal line with fuscous and white spots on it at the veins. Hindwing with the basal half paler, with brownish patch at base of inner margin; a double waved postmedial line filled in with gray; a waved submarginal line with fuscous and white spots on it at the veins. ♀. With the submarginal line of forewing more distinct and curved; underside with the submarginal lines of both wings more prominent.

*Habitat.*—Khasis. *Exp.* 98 mm.

## SPHINGIDÆ.

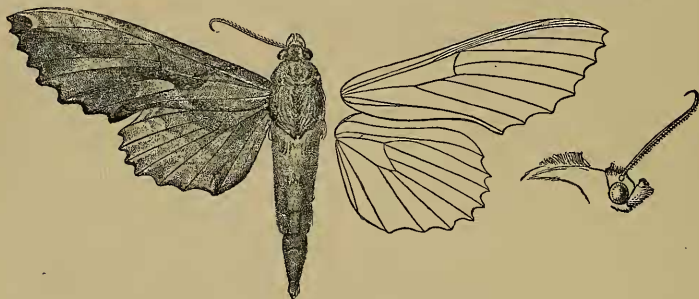
## Genus PHYLLOSPHINGIA.

*Phyllosphingia*, Swinh. A. M. N. H. (6), XIX, p. 164 (1897).

Type.—*P. dissimilis*, Brem.

Range.—Siberia, China, Assam.

Palpi upturned, broadly scaled and not reaching vertex of head, which has a somewhat pointed crest; antennæ fasciculate, recurved at tip; thorax with sharp dorsal crest. Forewing long and narrow; the outer margin oblique, evenly and deeply crenulate; the outer angle lobed, the outer margin excised before it. Hindwing with the costa excised to middle, then produced upwards to a lobe; the outer margin deeply and evenly crenulate; veins 6·7 from upper angle.



*Phyllosphingia dissimilis* ♂

926. *Phyllosphingia dissimilis*. Brem., 'Bull. Acad,' Pét., III. p. 475., and Lep. Ost. Sib., pl. 3, f. 12. *perundulans*, Swinh., A.M.N.H. (6), XIX, p. 164.

♂. Red-brown, crest on head and thorax blackish. Forewing with the basal costal area suffused with fuscous, the inner area and costal area towards apex with gray; an obscure dark line from costa before middle to below end of cell then running obliquely to apex before which it is incurved, the wedge-shape area between it and lower end of cell and vein 4 dark rufous; the area between apex of wedge and outer angle fuscous-brown; the apical part of outer area bright rufous; a dark spot on costa beyond middle; traces of two pairs of postmedial lines meeting towards inner margin. Hindwing with faint traces of postmedial lines; some fuscous suffusion near upper angle of cell and anal angle. Underside of forewing with three ill-defined whitish bands from costa

of forewing towards apex converging to vein 5 ; hindwing with curved pinkish-white medial band.

*Habitat*.—Amur, China, Jaintia Hills, Assam. *Exp.* 120 mm.

130a. *CHÆROCAMPA* GRISEO-MARGINATA, n. sp. (Pl. A, fig. 12).

♀. Head gray ; palpi brown at sides ; thorax olive-brown with dorsal grey line, the collar and patagia outlined with gray ; abdomen pink at sides, gray-brown above, the segments edged with brown, paired lateral series of white spots, a dorsal gray stripe. Forewing gray with diffused patches of olive-brown and black ; a blackish patch at base of median nervure ; an oblique gray streak near base of inner area ; three very obscure waved black antemedial lines ; a black speck in cell, with a gray streak from it to beyond end of cell on vein 5 ; three indistinct dentate black postmedial lines ; gray streaks on the veins of outer area crossing a whitish submarginal band narrowing to apex and just above outer angle. Hindwing fuscous, the basal and inner areas grayish ; traces of a postmedial band ; cilia gray. Underside suffused with pink, the outer area grayish ; an indistinct waved black postmedial line.

*Habitat*.—Sikhim, 1,800 feet (Dudgeon). *Exp.* 62 mm. *Type*.—In British Museum.

#### NOTODONTIDÆ.

P. 135. Under *Gargetta* insert *Phycidopsis* (Hampson) Ill. Het., IX, p. 91 (1893).

1956. *Phycidopsis* ALBOVITTATA, insert (syn.).

225a. *GARGETTA* *albovittata*.

226a. *GARGETTA* PUNCTIFASCIA, n. sp.

♂. Differs from *albimacula* in the vertex of head being pale. Forewing without the white patch ; indistinct double antemedial and medial series of black specks connected by traces of waved lines ; a more prominent postmedial double series of specks connected by a highly crenulate line ; an indistinct submarginal creulate line ; marginal and ciliary series of specks. Hindwing with the line parallel to the outer fuscous area reduced to a series of marks on the veins.

*Habitat*.—Khâsis. *Exp.* 52 mm. *Type*.—In British Museum.

230b. *Pydna aroides* is a variety of 232a. *P. bela*.

238a. *PYDNA* OBLIQUA, n. sp.

♂. Head, thorax, and abdomen brownish-ochreous tinged with gray. Forewing ochreous irrorated with brown ; an oblique fuscous shade

from apex to inner margin before middle, with darker spot on it below the cell, and crossed by a diffused fascia along median recurve, olive-yellowish at base, brown towards end of cell; a sub-basal dark point below costa; ante- and postmedial series of dark points; a submarginal series of oblique striæ. Hindwing fuscous with the cilia ochreous.

*Habitat*.—Khâsis. *Exp.* 38 mm. *Type*.—In British Museum.

282a. CHADISRA ATRIFUSA, n. sp.

♂. Antennæ bipectinate, the apex simple; palpi short and porrect. Head and thorax gray and brown; branches of antennæ rufous; abdomen reddish-brown and fuscous. Forewing gray, irrorated with brown and almost wholly suffused with black, leaving patches of gray at base, middle of costa and inner margin and middle of outer area; a double irregularly-waved antemedial line, a discocellular lunule, a double curved crenulate postmedial line. Hindwing yellowish-white suffused with rufous; traces of a medial line, especially on inner area; some rufous marks on cilia towards anal angle and a blotch at anal angle.

*Habitat*.—Khâsis. *Exp.* 50 mm. *Type*.—In British Museum.

285a. PHEOSIA CENTRISTICTA, n. sp.

♂. Head and thorax gray; abdomen fuscous with some white in anal tuft. Forewing fuscous-grey; a whitish patch at base of costa bounded by a curved black line; an antemedial black line incurved from costa to below cell where it is angled outwards, then again incurved to inner margin; a large white patch in and beyond end of cell with a very prominent black spot on it, traces of a yellowish reniform stigma and black striæ on median nervures; a postmedial black line nearly straight from costa to vein 3, near outer margin then very oblique, the veins beyond it streaked with black; apical area rufous. Hindwing pure white, with black marginal patch near anal angle.

*Habitat*.—Sikhim, 1,800 feet (Dudgeon). *Exp.* 54 mm. *Type*.—In British Museum.

288a. PHEOSIA PICTIBASIS, n. sp.

♂. Head and thorax dark brown mingled with gray hairs; patagia mostly fiery-red; abdomen blackish. Forewing with short white streak at base of median nervure, with fiery-red beyond it; the costal half of wing pale fawn, with brown speck and streak on costa towards apex; an oblique streak from outer margin below apex with some brown suffusion below it; a diffused chocolate fascia along median

nervure to outer margin, emitting a bar before middle half-way to inner margin ; the inner area purplish-gray with traces of minutely dentate postmedial line. Hindwing fuscous-brown.

*Habitat*.—Khásis. *Exp.* 40 mm. *Type*.—In British Museum.

298a. *HYPERÆSCHRA TRICHOSTICHA*, n. sp.

♂. Fuscous-brown ; collar blackish ; thoracic tuft fringed with black. Forewing with traces of highly crenulate lines on basal area, and two small tufts of raised black scales below the cell ; an ante-medial line with tufts of raised black scales on it, excurved in cell and above inner margin ; a postmedial double crenulate line, obsolescent towards costa, incurved below vein 3 and with tufts of raised black scales on it ; small raised submarginal tufts of black scales with fuscous marks on their inner side near apex, above vein 4 and above and below vein 2. Hindwing uniform fuscous-brown.

*Habitat*.—Sikhim, 1,800 feet (Dudgeon). *Exp.* 58 mm. *Type*.—In British Museum.

CYMATOPHORIDA.

329a. *THYATIRA UNDULANS*, n. sp.

♀. Head and thorax reddish-brown, vertex of head and a patch on patagia pinkish-white ; abdomen grayish. Forewing with black line from base of costa running with a sinuous curve to interno-median interspace beyond middle, then up to costa before apex, enclosing a large brown costal area with median diffused triangular pinkish-white patch on it, and oblique brown costal striga ; below the line is a sinuous pinkish-white patch from base to middle of wing ; the inner area brown, with fine whitish line from end of the white patch much retracted on vein 1 and defined by black above inner margin, and another fine line from lowest point of sinuous line to inner margin ; outer area pinkish-white, with oblique subcostal striga and indistinct crenulate submarginal line with some brown suffusion beyond it, becoming a prominent bidentate blackish mark above vein 2. Hindwing whitish with indistinct curved medial line and some marginal brown suffusion.

*Habitat*.—Khásis. *Exp.* 40 mm. *Type*.—In British Museum.

SESIIDÆ.

351a. *TRILOCHANA CHRYSOCHLORIS*, n. sp.

♂. Palpi clothed with very long hair. Head, thorax, and abdomen

black ; apical half of palpi yellow ; frons, collar, patches on patagia and meta-thorax golden-green ; abdomen with golden-green spots on basal segment ; five bands on following segments and two streaks meeting at extremity on anal segment ; third and fourth segments ventrally white. Forewing reddish-brown with golden-green spot at base. Hindwing hyaline, the veins and margins brown.

*Habitat.*—Khásis. *Exp.* 46 mm. *Type.*—In British Museum.

#### SYNTOMIDÆ.

452. *Syntomis baicea* is distinct from *actea*, the former having the antennæ serrate in ♂ and belonging to the section *Hydrusa*, the latter bipectinate.

##### 461a. SYNTOMIS PHÆNICOZONA, n. sp.

♂. Black ; antennæ white at tips ; thorax with crimson patches below ; meta-thorax and first segment of abdomen crimson ; wings with the outer area suffused with dull blue. Forewing with short wedge-shaped hyaline patch in end of cell and irregular quadrate patch below the end ; a small postmedial spot above vein 6 and two in interspaces between veins 3 and 5. Hindwing with two small hyaline postmedial spots in interspaces between veins 2 and 5.

*Habitat.*—Andamans. *Exp.* 20 mm. *Type.*—In British Museum.

#### ZYGÆNIDÆ.

##### ZYGÆNINÆ.

##### 481a. CALLARTONA MICROSTICTA, n. sp.

♂. Differs from *purpurascens* in being browner ; head brown with some yellow on frons and palpi. Forewing with two small yellow postmedial spots on costa. Hindwing with the yellow beyond cell not extending above vein 4 ; underside without the yellow costal fascia.

*Habitat.*—Khásis. *Exp.* 22 mm. *Type.*—In British Museum.

##### CHALCOSINÆ.

##### 514a. HERPA EUPOMA, Swinh. A. M. N. H. (6) XIX, p. 166.

Forewing with vein 9 from upper angle of cell. ♂ Black ; collar yellowish ; tegulæ with large crimson spots. Forewing with yellow costal fascia, crimson at base and narrowing to before apex ; subbasal black line with some yellow on its inner edge ; veins finely streaked with yellow ; cilia yellow. Hindwing with broad brilliant crimson

costal fascia, with an orange-yellow fascia below it, filling the lower part of cell ; the margin and cilia orange-yellow.

*Habitat*.—Khási and Jaintia Hills. *Exp.* 42 mm.

### PSYCHIDÆ.

#### 627. ACANTHOPSYCHE SUBTERALBATA.

The larva is destructive to tea in Chittagong. The type only has the neururation as figured ; three specimens from Ceylon and four from Chittagong have veins 4-5 of forewing shortly stalked or from cell ; 7 shortly stalked with 8 ; 9 absent ; hindwing with vein 6 absent.

ACANTHOPSYCHE, sub-gen. HEMILIPIA, nov.

Antennæ bipectinate to middle, the branches increasing from base, then suddenly shortening : fore tibia with a long spine. Forewing produced, the outer margin very oblique ; veins 1b and c separate, 1c reaching outer margin ; 1b without branch to inner margin ; a forked



veinlet in cell ; veins 2 and 3 at intervals before angle ; 4, 5 from angle ; the upper part of cell very much produced and the discocellulars highly angled ; 6 from below

*Acanthopsyche punctimarginalis* ♂<sup>1</sup> upper angle ; 7, 8 from angle ; 9 absent ; 10, 11 free. Hindwing with the apex rectangular, the anal angle lobed ; veins 2 and 3 at intervals ; 4 from angle ; 5 absent ; 6 from below 7 ; a forked veinlet in cell.

632a. ACANTHOPSYCHE (*Hemilipia*) PUNCTIMARGINALIS, n. sp.

♂. Antennæ fulvous ; head, thorax and abdomen clothed with long black hair. Forewing with the costal area to beyond middle and the inner area to outer angle whitish marked with black specks and conjoined spots and strigæ ; the rest of the wing hyaline with the veins black, and with some sparsely scattered black scales. Hindwing hyaline with a few black scales and the vein black ; the whole inner area clothed with black hair.

*Habitat*.—Puttalam, Ceylon (Pole). *Exp.* 26 mm. *Type*.—In British Museum.

633a. PSYCHE (*Heylertsia*) QUADRIPUNCTA, n. sp.

♂. Forewing with vein 6 from below angle of discocellulars ; 7 stalked with 8 ; 9 from near base of 8. Uniform black-brown with a slight

silky lustre. Forewing irrorated with a very few white scales; a white bar on discocellulars and spot on the junction of veins 1b and c.

*Habitat*.—Puttalam, Ceylon (Pole). *Exp.* 16 mm. *Type*.—British Museum.

### ARBELIDÆ.

#### 676a. ARBELA MILLEMACULATA, n. sp.

♂. Head, thorax, and abdomen black mixed with long orange hairs. Forewing orange-brown, tessellated with very numerous black spots somewhat conjoined towards middle of outer margin. Hindwing black, with the cilia golden. ♀. With the abdomen orange-yellow, the anal tuft black, wings orange-yellow, forewing with the basal area black, except at costa; a medial black band composed of spots run together, the outer area with three series of spots approximating towards outer angle. Hindwing with broad postmedial black band composed of confluent spots.

*Habitat*.—Khásis. *Exp.* 22 mm. *Type*.—In British Museum.

### DREPANULIDÆ.

P. 329. Under *Macrocilix* insert (syn.)

*Dipriodonta*.—Warr. Nov. Zool. iv., p. 14 (1897).

Section III (*Dipriodonta*). Antennæ of male laminate; forewing with veins 10 and 11 stalked, 10 anastomosing with 9-8 to form an areole.

#### 700a. MACROCILIX SERICIA. Warr, Nov. Zool., iv., p. 14.

Silky white; palpi and forelegs blackish below. Forewing with traces of a waved brown antemedial line angled below costa; a large hyaline patch in, below, and beyond lower end of cell; black points at lower angle of cell and origin of vein 3; a double-waved postmedial brown line, curved below costa, with some brown suffusion between it and apex and a sub-apical black point, with a black point beyond it on inner margin; traces of a waved submarginal line and marginal series of black specks. Hindwing with black point at lower angle of cell; traces of double-waved postmedial line and submarginal line; a marginal series of fine black striæ.

*Habitat*.—Khásis. *Exp.* 22 mm.

P. 331. Under *Auzata* insert (syn.) *Gonocilia*. Warr. Nov. Zool. iii, p. 337 (1896).

702a. *AUZATA SIMPLICIATA*. Warr. Nov. Zool., iv., p. 13.

♂. White. Forewing with the outer margin evenly curved ; traces of two sinuous fuscous antemedial lines and two postmedial lines, the latter with slight ocellate spot on vein 4 ; traces of a sinuous submarginal line. Hindwing with indistinct antemedial and medial and dentate submarginal lines ; the outer margin slightly angled at vein 4.

*Habitat*.—Khásis. *Exp.* 34 mm.

Section II (*Gonocilia*). Forewing with vein 10 arising from cell and anastomosing with 8-9 to form an areole.

702b. *AUZATA OCELLATA*. Warr. Nov. Zool. iii, p. 337.

White ; head blackish ; abdomen with fuscous patches on dorsum ; forewing with the base of costa fuscous ; a sinuous antemedial series of three fuscous spots ; a postmedial fuscous line broken below costa, then very acutely angled and expanded into a patch, then very strongly incurved, and with a large olive-fuscous patch on its outer side ; with the veins near lower angle of cell on it white ending in black specks, then double with a yellow mark on it, and with a fuscous speck on each side of it on inner margin ; a hyaline spot beyond the olive patch between veins 2 and 3 ; a diffused crenulate submarginal band interrupted below costa, and with two hyaline specks on it between veins 2 and 4 ; a marginal series of fuscous spots. Hindwing with two subbasal and three antemedial waved fuscous lines not reaching costa and interrupted near vein 1 ; three postmedial hyaline spots between veins 2 and 5 ; a maculate fuscous submarginal band, wide at middle, and with two hyaline spots on it between veins 2 and 4 ; a marginal series of fuscous spots.

*Habitat*.—Khásis. *Exp.* 34 mm.

719a. *DREPANA HUMERATA*. Warr. Nov. Zool. iii, p. 335.

Pale violaceous-gray ; head fuscous. Forewing with the costa fulvous ; an antemedial fulvous line very acutely angled below costa ; a black spot at upper angle of cell, and cluster of black and white-centred gray specks at lower angle ; a ferruginous line from middle of costa, very acutely angled below costa, then postmedial and sinuous ; the costa more strongly fulvous towards apex ; a dentate black submarginal line, obsolete towards costa ; a black speck with a white one on each

side of it at apex and a marginal series of specks ; cilia fulvous. Hind-wing paler, with indistinct sinuous postmedial rufous line.

*Habitat*.—Khásis. *Exp.* 22 mm.

720. DREPANA LILACINA insert (syn.) *Albara gracillima*. Warr.  
Nov. Zool. iv., p. 12.

722a. DREPANA OPALESCENS, Warr. Nov. Zool. iv., p. 12.

♂. Dark or pale purplish-gray ; head blackish. Forewing with traces of highly-waved antemedial line ; some ochreous specks at lower or both angles of cell ; an indistinct line running out to a very acute angle below apex, then becoming submarginal, crossing a prominent brown oblique line with fine line beyond it from apex to middle of inner margin ; the apex highly produced and dark ; cilia brown. Hindwing with indistinct curved subbasal line ; an oblique prominent brown medial line ; an indistinct dentate submarginal line ; cilia brown.

*Habitat*.—Khásis. *Exp.* 34-40 mm.

726. DREPANA TRILINEARIA insert (syn.) *Tridrepána trisulcata*.  
Warr. Nov. Zool. iii, p. 340.

734. DREPANA ALBONOTATA insert (syn.) *Tridrepána septempunctata*.  
Warr. Nov. Zool. iii, p. 339.

Var. with the whole forewings suffused with bright rufous except the base and outer angle, the submarginal spots below apex larger.

738. DREPANA QUADRIPUNCTATA insert (syn.) *Tridrepána diluta*  
Warr. Nov. Zool. iv, p. 18.

Under PROBLEPSIDIS insert *Euphalacra*, Warr. Nov., Zool. iv.,  
p. 195 (1897).

Antennæ strongly laminate ; forewing with the outer margin twice excised between apex and vein 4 ; 6 from areole ; 10 anastomosing with 8-9. Hindwing with the outer margin excised between veins 6 and 4.

741d. PROBLEPSIDIS NIGRIDORSATA, Warr. Nov. Zool. iv., p. 196.

♂. Pale ochreous, clouded with rufous ; frons fuscous ; abdomen with a fuscous band on second segment. Forewing with very numerous crenulate rufous lines ; a rufous shade below costal area ; black obliquely placed specks at the angles of cell ; an oblique line from outer margin below apex to middle of inner margin ; the crenulate lines when they meet it becoming oblique and running along with it, the line beyond it also oblique and diffused ; a marginal series of

dark points. Hindwing with numerous crenulate rufous lines, two subbasal and two postmedial more prominent; black specks at angles of cell; a marginal series of specks.

*Habitat*.—Khásis. *Exp.* 38 mm.

746a. PHALACRA MULTILINEATA. Warr. Nov. Zool. iv., p. 16.

Differs from *vidhisara* in being much more clouded with fuscous. Forewing with the crenulate lines more distinct, less oblique and much more numerous; a pale rufous fascia in the fold from middle of cell to outer margin below apex. Hindwing with numerous less oblique lines on basal area; the medial area without lines; the postmedial area with four fine prominent oblique quite straight lines between the postmedial and submarginal waved lines.

*Habitat*.—Khásis. *Exp.* 32-38 mm.

747. PHALACRA EXCISA insert (syn.) *Phalacra strigata*. Warr. Nov. Zool. iii, p. 331.

An ochreous variety with the markings of forewing obsolescent and replaced by a curved dark brown medial band very oblique below costa, then interrupted and met by the dark brown fascia from outer margin; some dark brown patches and points on the submarginal markings.

*Habitat*.—Khásis.

#### THYRIDIDÆ.

764. *Striglina decussata* insert *Striglina glareola*. Feld. Reise Nov., pl. 134, f. 11, which has precedence, and (syn.) *Striglina duplicifimbria*. Warr. A. M. N. H. (6), xviii, p. 227.

766a. RHODONEURA BULLIFERA. Warr. Nov. Zool. iii, p. 343.

♀. Palpi with the second joint reaching vertex of head, the third long and porrect; outer margin of both wings slightly excised below apex. Yellow-brown, thorax suffused with fuscous; wings ochreous, finely reticulated with red-brown. Forewing suffused with fuscous on medial and inner areas; costa with numerous minute black points; a whitish basal spot, a series of small antemedial spots, a medial oblique maculate band from below costa to vein 1; an obliquely-curved maculate band from apex to inner margin before outer angle, and some marks on outer margin, all these markings being reticulated with rufous. Hindwing with subbasal maculate whitish band, a postmedial band of spots, two towards costa and two beyond lower angle of cell small, and a curved series from apex to outer margin at vein 3, all reticulated

with rufous. Underside of forewing with fine black and white streaks in cell and beyond upper angle.

*Habitat*.—Khásis. *Exp.* 25 mm.

756*b*. RHODONEURA MOLLIS. Warr. Nov. Zool. iii, p. 341. (Pl. A fig. 13).

*Banisia mediostrigata*, Warr. Nov. Zool. iv., p. 197.

♂. Palpi with the third joint long and porrect; outer margin of both wings slightly excised below apex; pale yellowish-brown; abdomen dark, with whitish segmental lines; wings with rather sparse brown striæ. Forewing with fuscous line along median nervure and vein 3; basa costal area, an oblique medial band terminating at lower angle of cell, another terminating at upper angle, a band across apical area becoming diffused towards outer margin, and two spots towards apex, grayish; some brown lines across inner half of wing, two at middle crossing each other; a brown line on inner side of apical band and another line across apex. Hindwing with postmedial and submarginal lines oblique from costa to middle, then curved round.

*Habitat*.—Sikhim; Khasis. *Exp.* 42-60 mm.

780*a*. RHODONEURA CURVILINEA. Warr. A. M. N. H. (6), xviii, p. 229.

♂. Gray-brown, wings evenly striated with dark brown. Forewing with obscure subbasal antemedial and medial lines; the postmedial and submarginal lines more distinct, very oblique below costa, the former angled on vein 6, the latter curved; apical area bright chestnut. Hindwing with curved subbasal and oblique medial fine dark lines; the postmedial line forking from middle to anal angle; a submarginal line from costa to vein 2. Underside of forewing with bright chestnut subcostal fascia and black and white streaks in and beyond end of cell; chestnut patches below cell and at outer angle. Hindwing chestnut.

*Habitat*.—Khásis. *Exp.* 24 mm.

786 will stand as RHODONEURA RETICULATA, Moore.

786*a*. Rhodoneura dissimulans. Warr. A. M. N. H. (6), xviii, p. 227.

*Banisia ordinaria*. Warr. A. M. N. H. (6), xviii, p. 228.

Differs from *reticulata* in having no black and white streaks on forewing below. One specimen is much more rufous in tone, with the bands bright chestnut.

*Habitat*.—Khásis, Borneo, Queensland. *Exp.* 24-40 mm.

786b. RHODONEURA TETRAGONATA, Wlk. Journ. Linn. Soc. vii, p. 78.

*Rhodoneura quadripunctula*, Pag. Iris. v, p. 100.

*Pharambara vinosa*, Butl. P.Z.S. 1892, p. 130, pl. vi, f. 8.

*Rhodoneura jubralis*, Swinh., A. M. N. H. (6), xvi, p. 299.

Differs from *reticulata* in being smaller and grayer; both wings with a pair of hyaline white spots near origin of vein 2; forewing without black and white streaks below.

*Habitat*.—Khásis, Borneo. *Exp.* 30 mm.

789. RHODONEURA ALTERNATA insert (syn.) *Banisia bifimbriata*, Warr. Nov. Zool. iv, p. 20.

790a. RHODONEURA ATRICLATHRATA, Warr. Nov. Zool. iii, p. 340.

♂. Pale reddish; head, thorax, and abdomen suffused with rufous, the last with blackish dorsal line and some lateral and ventral spots, Forewing with rufous suffusion striated with fuscous on basal half, costa, and a discocellular patch conjoined to costa; the rest of wing reddish-ochreous; an ill-defined postmedial band with black specks and spots on it, and narrowing at middle; outer area with black specks and spots. Hindwing suffused with rufous and spotted with black.

*Habitat*.—Khásis. *Exp.* 25 mm.

798a. RHODONEURA DOHERTYI, Warr. Nov. Zool. iv., p. 196.

(Pl. A, fig. 1.)

*Rhodoneura stenosoma*, Hmps. P.Z.S. 1897 ined.

♂. Palpi with the third joint long and reaching well above vertex of head; abdomen very long. Gray; abdomen with some dark marks on dorsum; wings sparsely irrorated with black scales and closely striated with fine dark striæ; traces of five bands on forewing and three on hindwing; forewing with whitish mark below apex, with dark speck on it, more prominent on underside. Underside of hindwing with some dark brown patches.

*Habitat*.—Ceylon, Bali, Queensland. *Exp.* 28 mm.

#### Genus BEGUMA.

*Beguma*, Warr. A. M. N. H. (6), xviii, p. 228 (1896).

*Type*.—*B. constellata*, Warr.

*Range*.—Assam.

Palpi upturned and reaching vertex of head, the second joint fringed with scales, the third naked and acuminate; antennæ thickened and



*Beguma constellata* ♂  $\frac{1}{2}$

flattened. Forewing with the apex rounded, the outer margin evenly curved; veins 3 and 5 from near angle of cell; 6 from below upper angle; 7 from angle; 8 anastomosing with 9, which is given off from 10 to form an areole. Hindwing with veins 3-4 from

angle of cell; 5 from above angle; 6-7 from upper angle; 8 free.

808a. *BEGUMA CONSTELLATA*. Warr. A.M.N.H. (6), xviii, p. 228.

♂. Head fulvous; thorax black-brown; abdomen fulvous. Forewing pale, suffused with pale red, deeper and purplish at base, along veins only on outer area. Hindwing similar, but with the purplish confined to inner basal area. Underside of forewing with a few silvery-blue spots below costa and in cell; the basal half of inner area thickly spotted. Hindwing with the basal area thickly spotted with silvery-blue running outwards to beyond middle on costa and below cell.

*Habitat*.—Khásis. *Exp.* 42 mm.

#### LIMACODIDÆ.

822b. *MACROPLECTRA APICALIS*, n. sp.

Glossy black-brown. Forewing with small triangular yellowish-white apical spot; vertex of head, frons, and palpi pale yellow.

*Habitat*.—Khásis. *Exp.* ♂ 16, ♀ 18 mm. *Type*.—In British Museum.

This species has the extremely thickened and flattened antennæ of *semiaurantia* in the ♂, also the large tuft of scales on metathorax; vein 10 is from the cell, but the long palpi and spurs will separate the genus from *Oxyplax*.

Section IV. Antennæ of male serrate throughout.

844a. *NATADA ACATHARTA*, n. sp.

♂. Gray-brown suffused with fuscous. Forewing with dark points at base and end of cell and traces of a dark line below the cell; a large dark postmedial patch between vein 7 and inner margin with obscure pale centre with dentate outer edge; a dark marginal apical line. Hindwing uniform fuscous.

*Habitat*.—Khásis. *Exp.* 30 mm. *Type*.—In British Museum.

## 849a. BIRTHAMA DIFFUSA, n. sp.

♀. Head, thorax, and abdomen clothed with whitish and rufous hair; abdomen with some of the lateral scales tipped with black. Forewing rufous, with whitish patches at base of inner area and outer angle, and a large semi-circular apical patch extending down to vein 3, and bounded on inner side by a fuscous line; a diffused black medial band broad at costa, narrowing to inner margin. Hindwing black-brown with some whitish near anal angle.

*Habitat.*—Khásis. *Exp.* 36 mm. *Type.*—In British Museum.

## 862a. PARASA PÆERA, n. sp. (Pl. A, fig. 10.)

♀. Pale gray-brown; vertex of head and thorax bright yellow-green. Forewing with gray-brown basal patch wide at costa, narrowing to inner margin, and bounded by a dark line; medial half bright yellow-green bounded by a curved minutely-waved dark line; outer area gray-brown. Hindwing gray-brown tinged with fuscous.

*Habitat.*—Puttalam, Ceylon (J. Pole). *Exp.* 32 mm. *Type.*—In British Museum.

## 880a. TRICHOGYIA METAMELÆNA, n. sp.

♂. Head, thorax, and anal tuft reddish-brown; abdomen fuscous. Forewing reddish-brown slightly irrorated with fuscous. Hindwing fuscous-black.

*Habitat.*—Sikhim, 1,800 (Dudgeon). *Exp.* 12 mm. *Type.*—In British Museum.

## 882a. ARÆOGYIA CUPREATA, n. sp.

♀. Cupreous-brown tinged and irrorated with fuscous. Forewing with a bright cupreous tinge; a dark sinuous submarginal line, the area beyond it with a purple gloss; a prominent black marginal line becoming obsolete near outer angle; cilia yellow at tips. Hindwing dark brown; cilia pale yellow with a dark line through them.

*Habitat.*—Khásis. *Exp.* 16 mm. *Type.*—In British Museum.

## 884a. CANIA NOTODONTA, n. sp.

♂. Antennæ bipectinate with rather short branches to apex; forewing with scale-tooth on middle of inner margin. Pale silky yellow-brown; forewing with series of dark points from costa before apex to end of scale-tooth on inner margin.

*Habitat.*—Khásis. *Exp.* 30 mm. *Type.*—In British Museum.

891b. *NAROSA ENDODONTA*, n. sp.

♂. Differs from *conspersa* in the lines near inner margin of forewing being strongly dentate, the postmedial line not bent inwards to lower angle of cell, and without orange patch above it. Thorax with more white suffusion; abdomen with the dorsal tufts fiery-red.

*Habitat*.—Khásis. *Exp.* 26 mm. *Type*.—In British Museum.

893a. *NAROSA PACHYCERA*, n. sp.

Antennæ of male one and-a-half times the length of forewing, and extremely thickened and flattened. Hindwing with vein 6 from cell well separated from 7. ♂. Pale gray-brown of a silky texture and irrorated with a few fuscous scales; antennæ and anal tuft ochreous. Forewing with the subcostal nervure white towards end of cell; a diffused sinuous ill-defined fuscous band from costa beyond middle to outer angle; a slight dark marginal line. Hindwing somewhat more fuscous. ♀. Much more rufous; forewing with a medial whitish patch on costa; the postmedial band indicated by indistinct sinuous lines; cilia mostly fuscous. Hindwing pale.

*Habitat*.—Khásis. *Exp.* ♂ 20, ♀ 22 mm. *Type*.—In British Museum.

911a. *Metanastria rubra*=*Odonestis dieckmanni*, Græser. Berl. Ent. Zeit., xxxii, p. 128, Amur.

942. *ODONESTIS LÆTA* insert (syn.) *Odonestis ossa*, Swinh., A. M. N. H. (6), xix, p. 410.

LYMANTRIIDÆ.

972a. *AROA ATRESCENS*, n. sp.

♂. Head and anal tuft rufous-brown; thorax and abdomen fuscous-brown. Forewing rufous-brown suffused with fuscous; very indistinct pale waved ante-postmedial and submarginal lines. Hindwing black-brown; cilia of both wings rufous.

*Habitat*.—Khásis. *Exp.* 20 mm. *Type*.—In British Museum.

996a. *CIFUNA BIUNDULANS*, n. sp.

♂. Ochreous; abdomen suffused with fuscous. Forewing with strongly bisinuate pale antemedial line with broad fuscous band on its inner side; a minutely-waved postmedial pale line strongly excurved at middle and with fuscous suffusion on its outer edge strongest towards costa. Hindwing paler with slight fuscous irroration.

*Habitat*.—Khásis. *Exp.* 22 mm. *Type*.—In British Museum.

1060a. *EUPROCTIS ENDOPLAGIA*, n. sp.

♂. Pale yellow; forewing with diffused fuscous patch on middle of inner area.

*Habitat.*—Khásis. *Exp.* 22 mm. *Type.*—In British Museum.

1091a. *EUPROCTIS OLIVATA*, n. sp.

Head whitish; thorax brownish; abdomen fuscous, the anal tuft orange. Forewing gray-brown irrorated with black and suffused with olive-yellow; a waved white antemedial line; a lunulate postmedial line angled inwards below costa, oblique below vein 4 and angled inwards below 2 to near the antemedial line; cilia chequered brown and white. Hindwing white suffused with fuscous, the costal area whiter.

*Habitat.*—Khásis. *Exp.* ♂ 28, ♀ 40 mm. *Type.*—In British Museum.

1091b. *EUPROCTIS XANTHOPERA*, n. sp.

Forewing with vein 7 absent. ♂. Head and thorax gray-brown; abdomen blackish with the anal tuft orange. Forewing gray-brown irrorated with black; a yellow spot in cell; a sinuous whitish medial line angled below costa, and crenulate submarginal line highly excurved at middle; patches of brown irrorated with black in the interspaces between the two lines; an apical yellow patch with two spots below it and two spots above outer angle; cilia yellow and brown. Hindwing with the basal half fuscous; the outer half yellow.

*Habitat.*—Khásis. *Exp.* 34 mm. *Type.*—In British Museum.

1092a. *EUPROCTIS ATRIPUNCTA*, n. sp.

♂. Head, thorax, and abdomen rufous and white; shaft of antennæ white. Forewing whitish suffused with rufous; double white ante and postmedial lines, the former slightly waved, the latter crenulate, bent inwards below vein 4 and joining the antemedial line at inner margin; a black discocellular spot; the outer area white; the rufous suffusion beyond the postmedial line angled outwards below costa and at middle. Hindwing yellowish-white. ♀. With the rufous suffusion on forewing more prominent. Hindwing brownish-ochreous, the margin whitish.

*Habitat.*—Khásis. *Exp.* ♂ 28, ♀ 46 mm. *Type.*—In British Museum.

## 1102a. EUPROCTIS BIDENTATA, n. sp.

♂. Yellow ; abdomen blackish, except at base and extremity. Forewing with the basal two-thirds suffused with brown and irrorated with black, leaving a yellow patch on costa before middle, its outer edge sending two strong teeth outwards below veins 6 and 5; a subapical dark spot. Hindwing pale yellow.

*Habitat*.—Sikhim (Lidderdale). *Exp.* 38 mm. *Type*.—In British Museum.

## ARCTIIDÆ.

## LITHOSIINÆ.

## 1281a. CYANA CATORHODA, n. sp.

Differs from *peregrina* in the forewing being without the black edge to the bands. Hindwing and underside bright rose-pink ; male with the sexual characters on hindwing.

*Habitat*.—Khâsis. *Exp.* ♂ 24, ♀ 30 mm. *Type*.—In British Museum.

1284a. *Cyana dudgeoni*, the ♀ described is *alborosea*, Wlk., the true female has three black spots on forewing ; veins 4-5 from cell. Hindwing with veins 6-7 stalked ; underside as in male. It will form Section II-E. *Habitat*.—Khâsis.

## 1289a. CYANA WATSONI, n. sp.

♂. Pure white ; palpi, frons, and legs tinged with fuscous ; collar, patagia, and metathorax fringed with orange. Forewing with orange spot near base of costa ; a broad slightly sinuous oblique antemedial orange line ; the postmedial line bent inwards to costa, with the uppermost black spot beyond it at end of tuft and divided into two, the line expanding above inner margin ; a submarginal line bent inwards and expanding below apex and not reaching inner margin. ♀. With the upper black spot single, the postmedial line well beyond it and not bent inwards to costa.

*Habitat*.—Khâsis, Upper Burma (Watson). *Exp.* ♂ 30, ♀ 33 mm. *Type*.—In British Museum.

## 1289b. CYANA KHASIANA, n. sp.

♂. White ; palpi black ; forelegs banded with black ; antennæ brown ; thorax with three orange bands. Forewing with the base of costa orange ; a short subbasal band ; an oblique antemedial band, the spot at upper angle of cell small ; the postmedial band oblique to vein 4, and

with a small black spot beyond it below costa. ♀. Forewing without orange on base of costa, the black spot at upper angle of cell large, and no spot beyond the postmedial band.

*Habitat.*—Khásis. *Exp.* ♂ 38-46, ♀ 52 mm. *Type.*—In British Museum.

1203a. KERALA DORSOVIRIDIS, n. sp.

Differs from *punctilineata* in the thorax being pale sea-green, the head brown. Forewing gray-brown with rufous specks and suffusion; discocellulars without white scales; the inner area below the submedian fold pale sea-green; the postmedial line near the submarginal line which is maculate; no marginal white line. Hindwing with the sexual patch of male cream-coloured.

*Habitat.*—Khásis. *Exp.* 40 mm. *Type.*—In British Museum.

1328a. CHRYSORABDIA AURANTIACA, n. sp.

♂. Differs from *bivitta* ♀ in the palpi, frons, and patagia being black, the last fringed with yellow. Forewing with no blue on the fasciæ, the costal fascia broadening to near apex, then slightly narrowing; the submedian fascia broadening to its extremity near outer margin; cilia blackish at tips.

*Habitat.*—Khásis. *Exp.* 60 mm. *Type.*—In British Museum.

1381b. GAMPOLA PUNCTIVENA, n. sp.

♂. Head, collar, and anal tuft orange-yellow; thorax and abdomen gray. Forewing gray-brown, with black point below end of cell in interno-median fold. Hindwing dirty white; cilia of both wings pale yellow.

*Habitat.*—Sikhim; 1,800 feet (Dudgeon). *Exp.* 20 mm. *Type.*—In British Museum.

This species and *binotata* belong to the same section as *normalis*.

1381c. GAMPOLA MURICOLOR, Wlk. Journ. Linn. Soc., vol. vi., p. 105.

Silky gray; vertex of head and costa of forewing pale yellow; cilia yellowish.

*Habitat.*—Khásis, Borneo. *Exp.* 16-22 mm.

(To be continued.)